

# Maine Childhood Lead Poisoning Surveillance

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## Childhood Lead Poisoning Surveillance

- Historical perspective
- National surveillance
- Maine surveillance

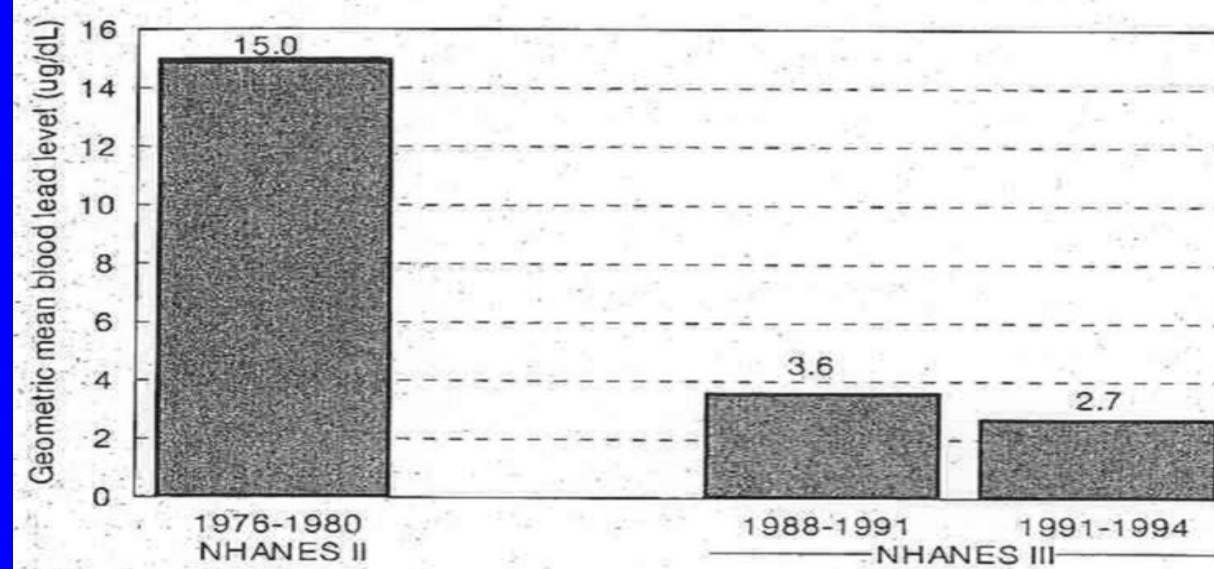
## Historical Perspective

- Second century, B.C., Dioscorides (1st. Neuro-toxicologist) - “Lead makes the mind give way.”
- Benjamin Franklin - symptoms of typesetters and painters.
- Nineteenth century, A.J. Turner and J. Lockhart Gibson - disease one of “habitation.”

Needleman, H., National Health/Education Consortium, 1992

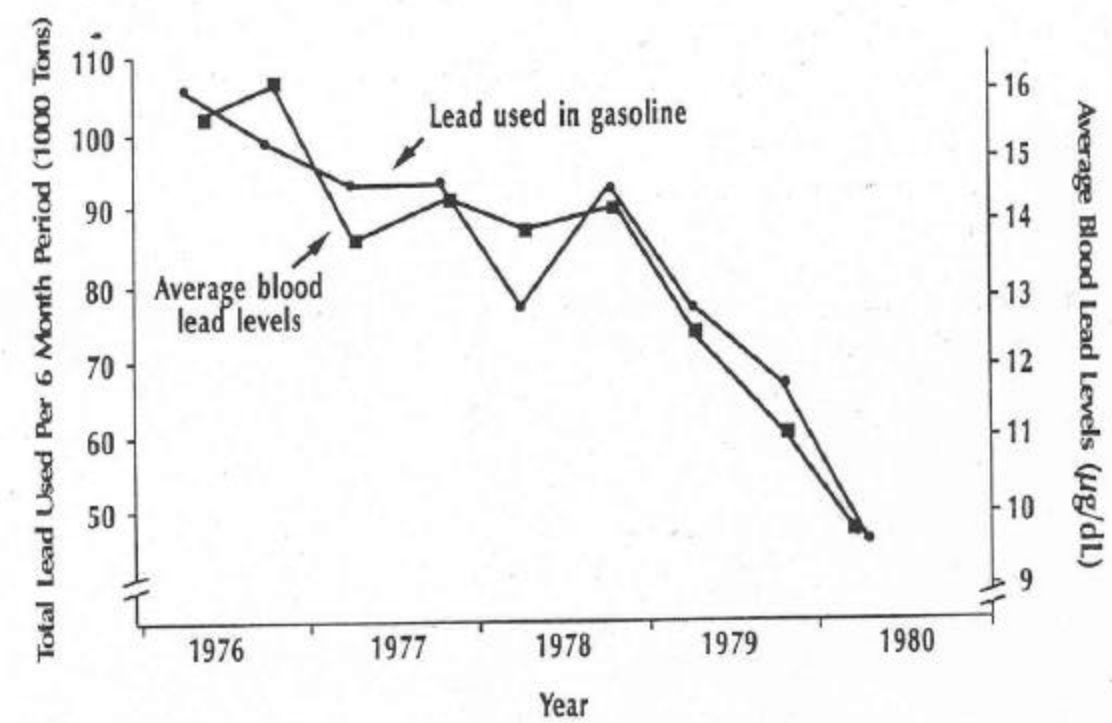
# National Surveillance

**Figure 1.1.** Geometric mean blood lead levels of children ages 1-5 years in the United States: NHANES II and III



## Evolution of blood lead levels

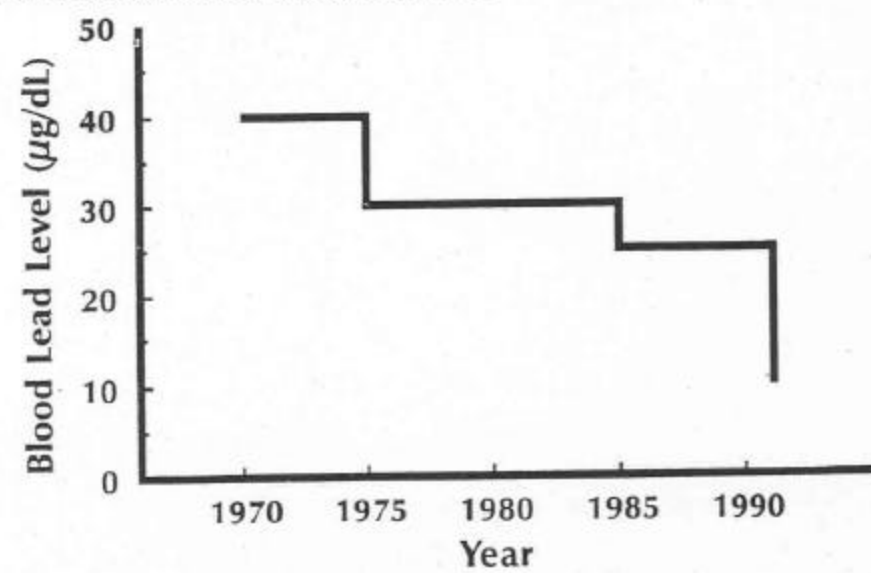
Figure 2-5. Change in blood lead levels in relation to a decline in use of leaded gasoline, 1976–1980



Source: Annett JL, 1983.

## Progression of acceptable blood lead levels

Figure 2-2. Blood lead levels considered elevated by the Centers for Disease Control and the Public Health Service



## Public Health Surveillance

The **ongoing systematic** collection, analysis, and interpretation of health data essential to the planning, implementation and valuation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. **The final link in the surveillance chain is the application of these data to prevention and control.**

CDC 1986

## Planning a surveillance system

- Considerations
  - What do we want to know?
  - What are our data sources?
  - How will the data be analyzed?
  - How will the information be disseminated?
  - Who will use the information reported?



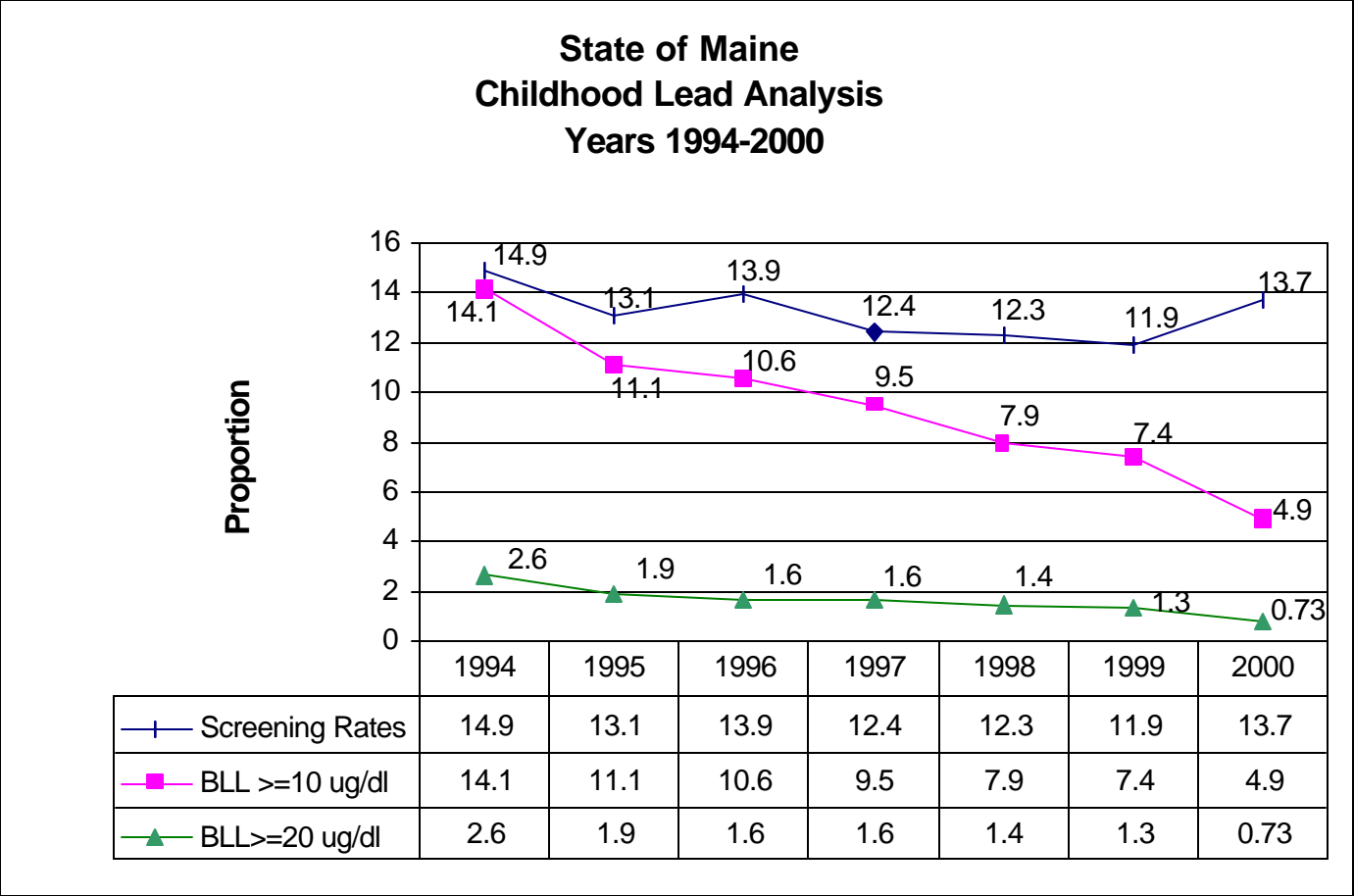
## Maine Childhood Lead Poisoning Surveillance

- How many children 0-5 years of age living in Maine are tested for lead poisoning?
  - Measurement: Lead screening rates
- How many children 0-5 years of age living in Maine have lead poisoning?
  - Measurement: Proportion of elevated blood lead levels

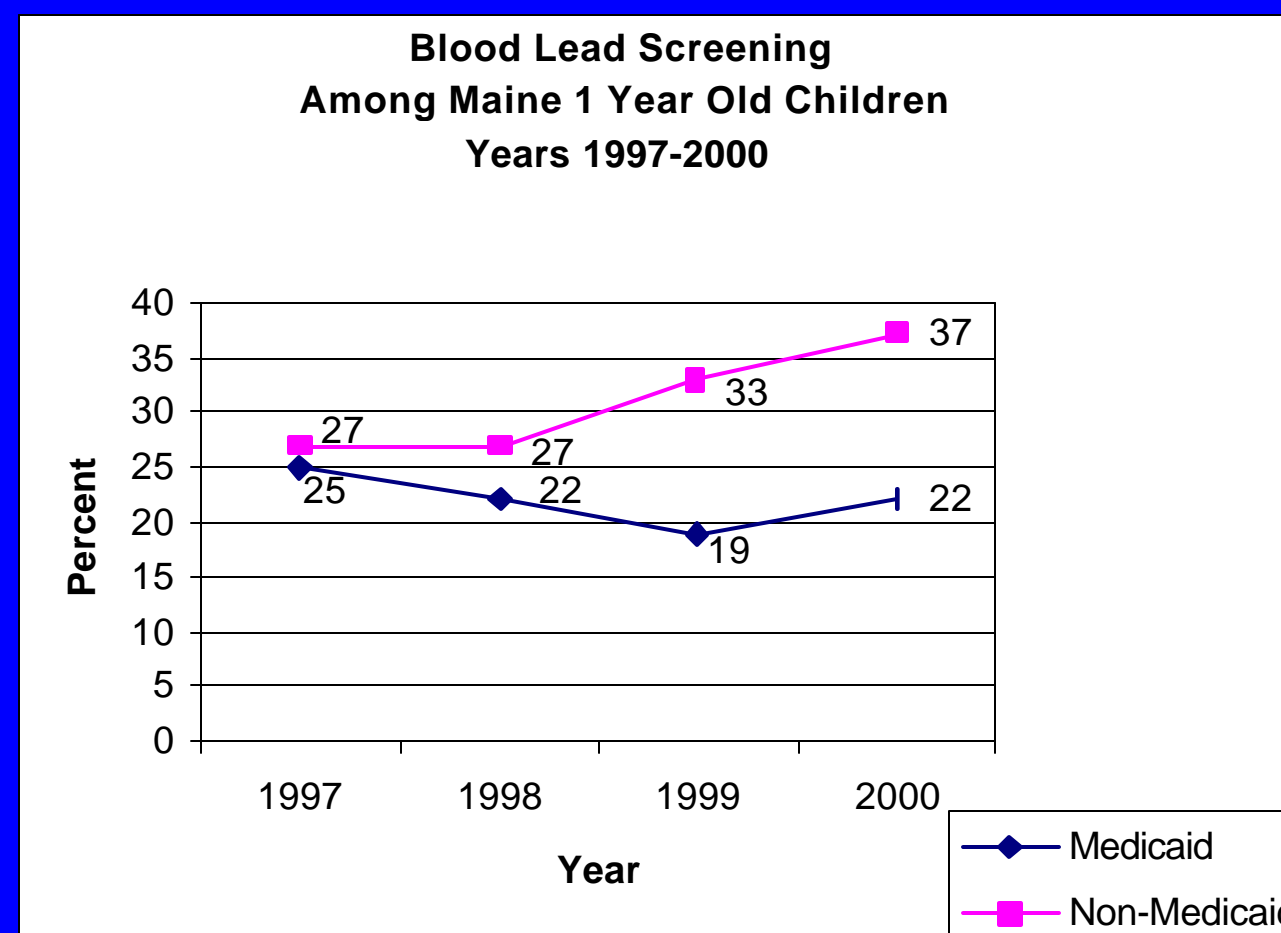
## Maine Legislation

- 1992 Lead Statute
  - Physicians must advise parents on advisability and availability of lead screening. All blood lead samples (children < 6 yrs) must be analyzed at the Health and Environmental Testing Laboratory, State of Maine.
- 2002 Lead Statute
  - All children must be screened at 1 & 2 years of age unless the provider can demonstrate via a risk assessment questionnaire that the child is not at risk for lead exposure.
  - Reiterates the federal law that all 1 & 2 year old children enrolled in MaineCare must be screened.

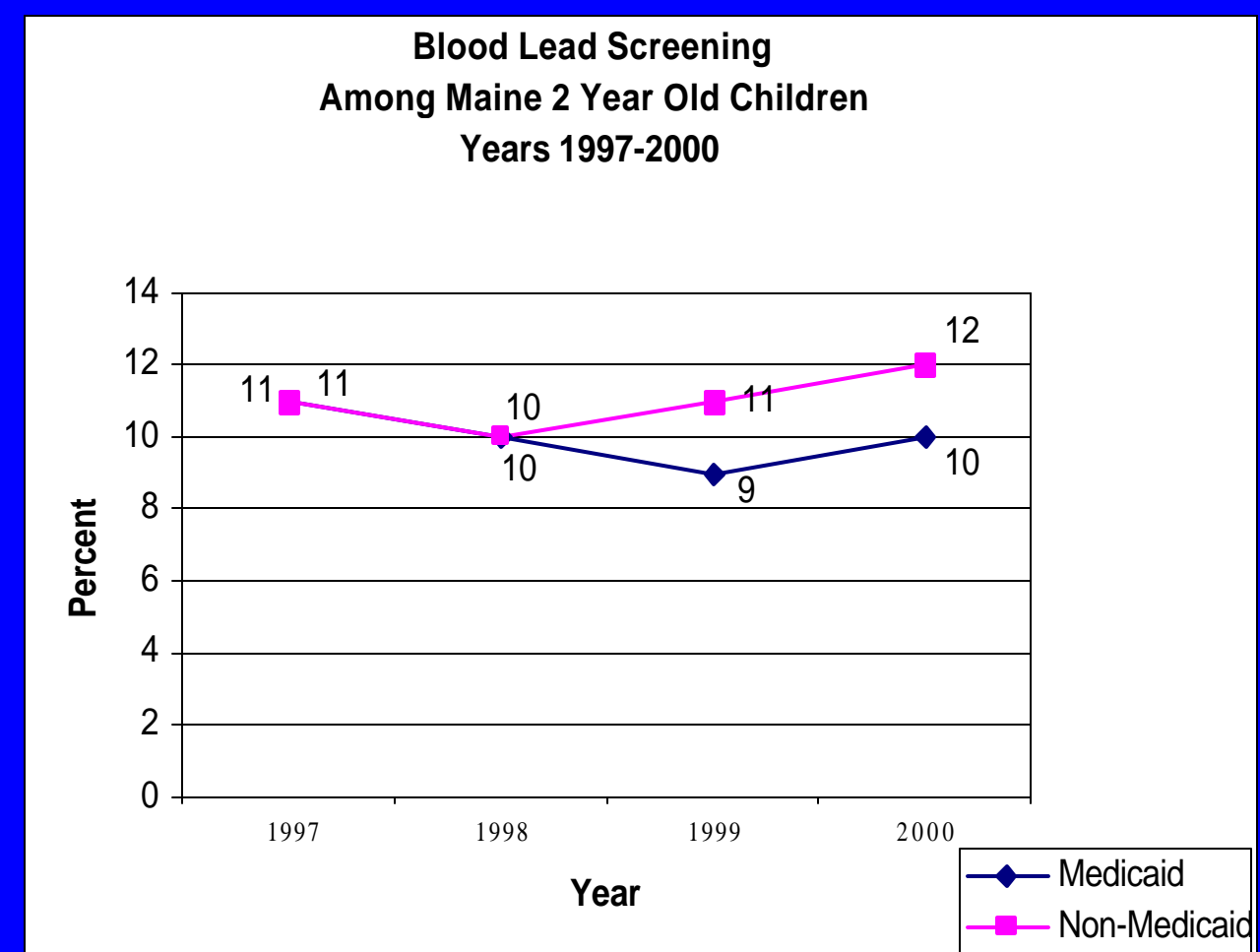
# Lead Screening Rates Temporal Trends (0-5 yo)



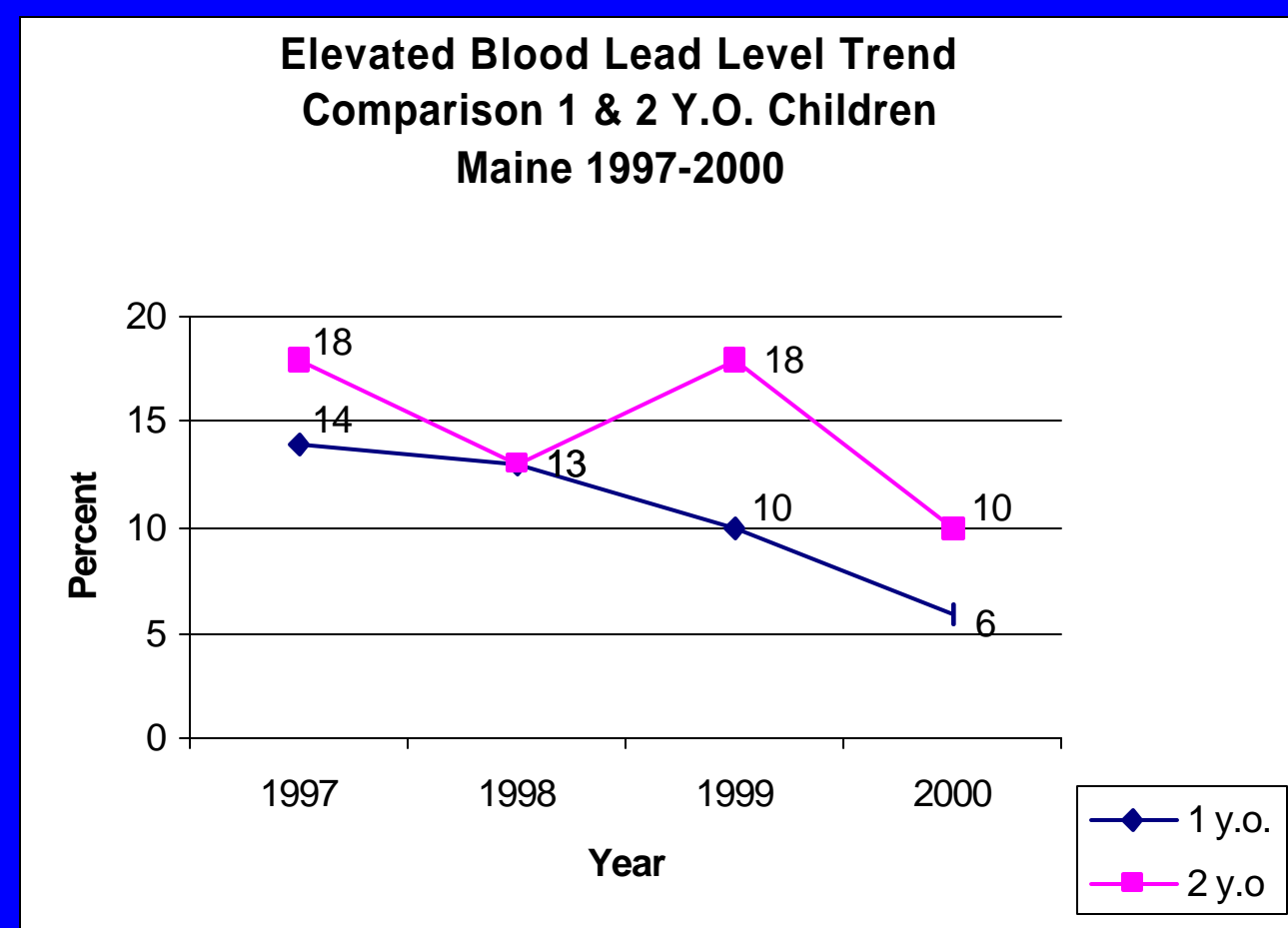
# Lead Screening Temporal Trends (1 yo)



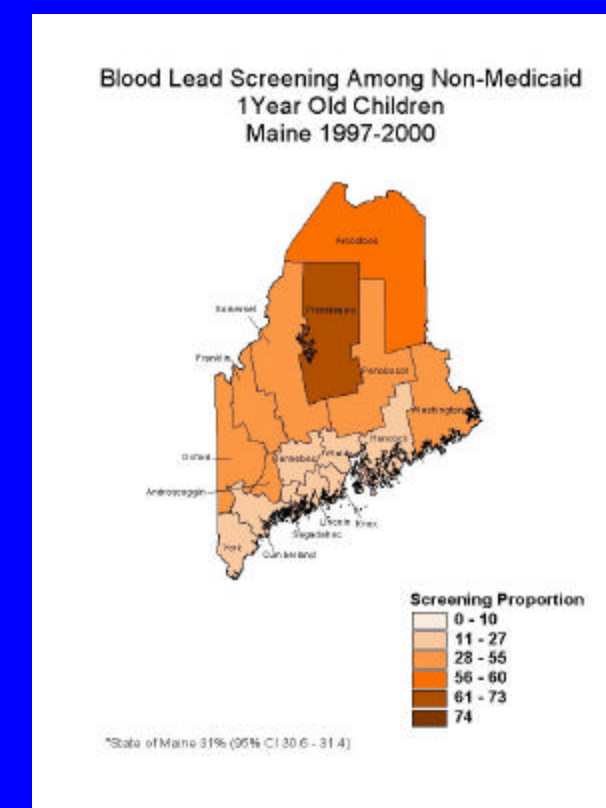
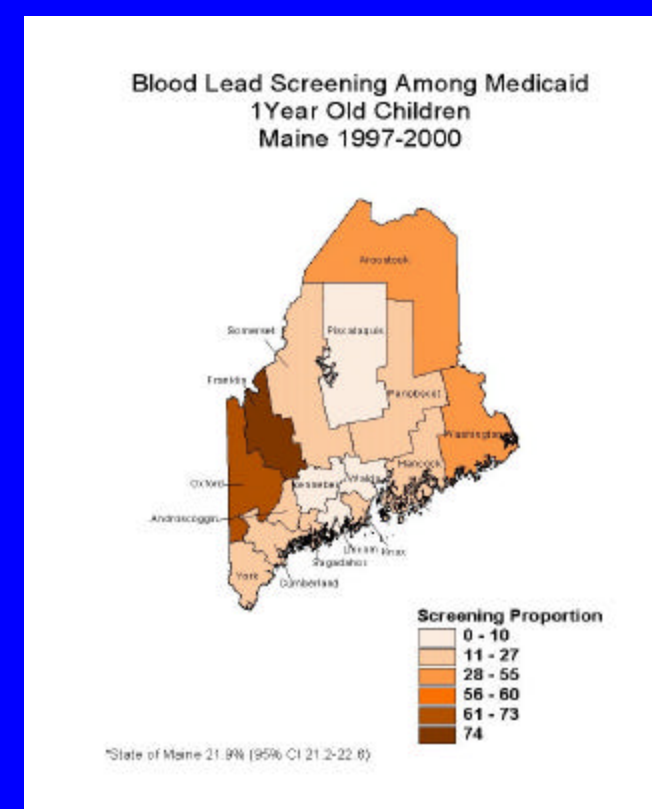
# Lead Screening Temporal Trends (2 yo)



## Elevated Blood Lead Levels Temporal Trends (1 & 2 yo)



# Geographic Distribution of Blood Lead Screening



## Where do we go from here?

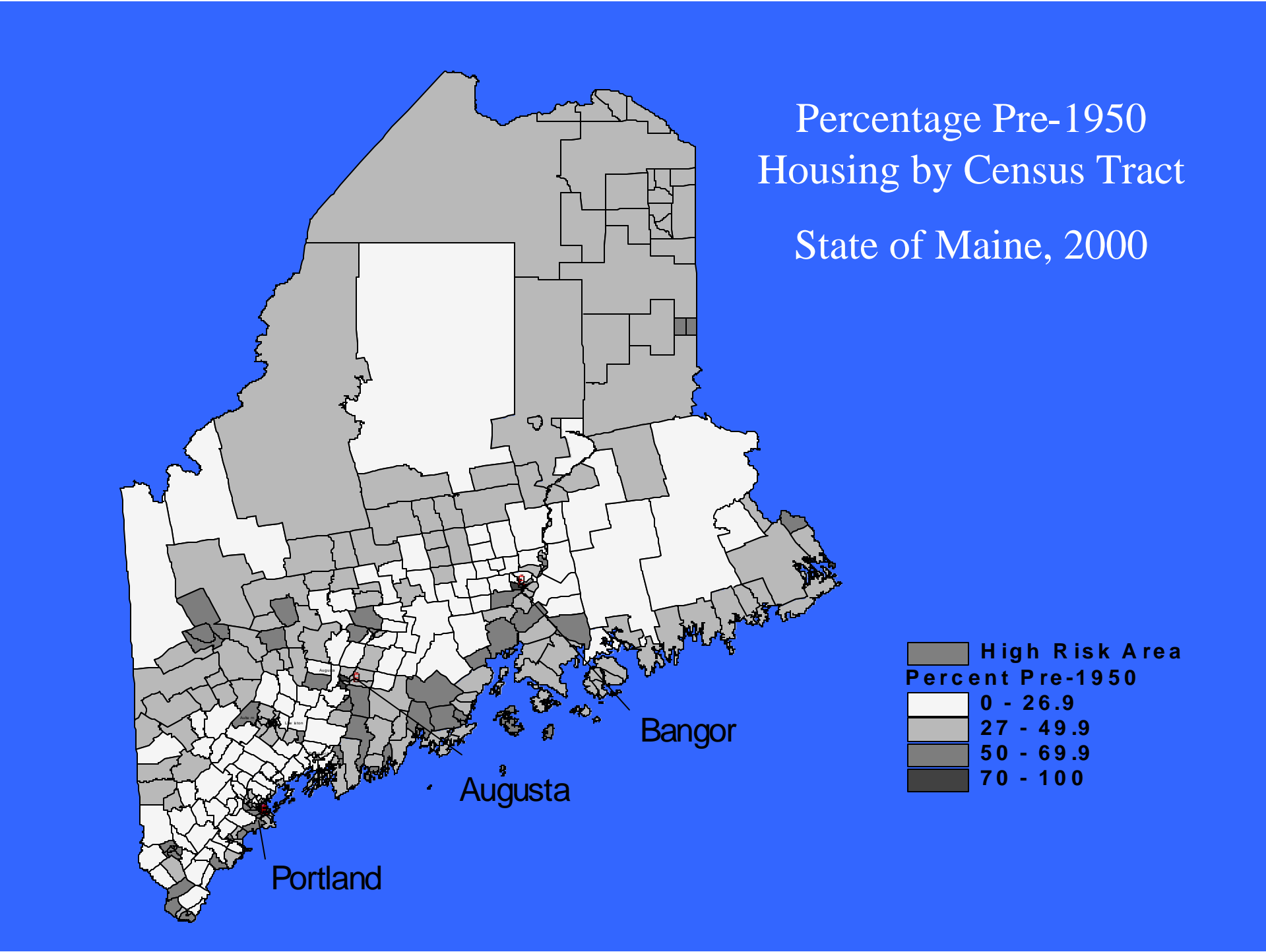
- Targeted screening approach
  - How do we identify high risk populations?
  - What data are available?
  - How do we link laboratory data with other data?



## Data Linkage Examples

- Census Data
- Environmental Home Testing Data
- Public Health Nursing Home Visit Assessment Data

Percentage Pre-1950  
Housing by Census Tract  
State of Maine, 2000



## Risk Assessment Validation Study

- Estimate sensitivity of questions to identify children at high risk of lead exposure.
- Assist in identification of geographic areas of high risk within Maine.

## Future Projects

- Annual surveillance report
- Evaluate environmental stop gap techniques
- Continued collaboration with Maine State Housing Authority & Department of Environmental Protection (secondary & primary prevention)
- Emphasis on primary prevention model